

## ABSTRACT OF THE DISCLOSURE

Thermal insulation structure having at least one flexible layer based on compressed expanded graphite particles characterised in that the density of the said flexible layer is equal to at least  $0.4 \text{ g/cm}^3$  ( $400 \text{ kg/m}^3$ ) and in that the thermal insulation structure also includes another layer close to the flexible layer based on compressed graphite particles with a lower density, typically less than  $0.4 \text{ g/cm}^3$  ( $400 \text{ kg/m}^3$ ). Preferably, the dense compressed expanded graphite layer has a density of between  $0.5$  and  $1.6 \text{ g/cm}^3$  ( $500$  and  $1600 \text{ kg/m}^3$ ) and the sub-dense compressed expanded graphite layer has a density of between  $0.05$  and  $0.3 \text{ g/cm}^3$  ( $50$  and  $300 \text{ kg/m}^3$ ). Thermal insulation elements are also described that are designed to be fitted on furnaces operating under non-oxidising atmosphere and at temperatures of more than  $800^\circ\text{C}$ .